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5-N-ALKYLRESORCINOLS AS BIOPESTICIDES: INVESTIGATING THEIR ROLE AGAINST THE ACCUMULATION OF DEOXYNIVALENOL IN DIFFERENT TRITICUM AND TRITORDEUM SPECIES

PEDRAZZANI C., VANARA F., BLANDINO M., DALL'ASTA C., RIGHETTI L.

[1]Department of Food and Drug, University of Parma, Parco Area delle Scienze 17/A, 43124 Parma, Italy. [2]Department of Agricultural, Forest and Food Sciences, University of Torino, Largo Paolo Braccini, 2, Grugliasco, Italy.

Fusarium head blight (FHB) is a devasting fungal disease in many parts of the world and the subsequent accumulation of its mycotoxins, especially deoxynivalenol (DON) represents one of the most important threats to food safety. FHB has harmful effects on human and animal health as well as economic losses. Among the strategies developed for reducing DON accumulation in grains, the use of natural molecules is becoming increasingly important. Recently, the secondary plant metabolites alkylresorcinols (AR) have gained interest as biopesticides, because of their involvement in limiting the fungal spread in cereal crops. At this purpose, the present study aimed to investigate the correlation between saturated and unsaturated AR homologues and the accumulation of DON in different varieties of *Triticum spp*. and tritordeum, a new species not yet completely characterized. Samples were grown over two consecutive years under uniform agronomic conditions. DON and AR content was analysed using UHPLC-IMS-HRMS. Our result showed a negative correlation ($P<0.05$) between DON content and the ratio of AR homologues AR 21:0/AR 23:0, previously reported as an indicator of antifungal activity. The result obtained in the present study confirmed the involvement of AR on the accumulation of DON in wheat, finding a great diversity in the AR content in cereals depending on the genetic and environmental background.